THE DELAWARE AND HUDSON RAILROAD BULLETIN

"The D. & H."

NOVEMBER 1, 1930

"SUNLIGHT AND SHADOW"
NEAR PLATTSBURG, N.Y.

Forebodings

DO you tremble when you think of
What the future years may bring?
Do you dread to taste Life's sweetness
Lest at length you find the sting?
When the road lies smooth before you
And you leave an even past,
Does some shadow overhang you
Which you fear will fall at last?

Timid soul! Why will you borrow
Trouble from the days ahead?
You may find when they draw near you,
That which caused your fear has fled.
Take the wondrous gifts Life offers;
Prize the good and spurn the dross;
Those dread bridges that affright you,
You may never have to cross.

Why let visions of your fancy
Shake your soul and rack your mind?
P'raps the worst things Fate held for you
You've already left behind.
Even if sore trails wait you,
Surely you can bear them through.
Souls can conquer circumstances,
Future joys depend on you.

—F. C. MECAIR, in *The Patriot*.

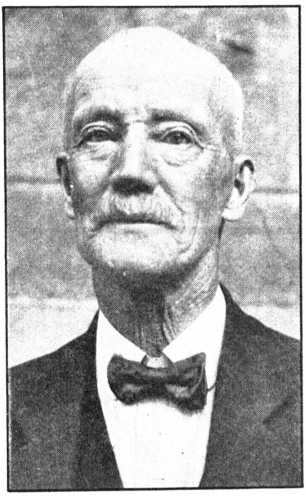
The DELAWARE AND HUDSON RAILROAD CORPORATION
BULLETIN

Vol. 10 | Albany, N. Y., November 1, 1930 | No. 21

He Fired Wood-Burners

But Mechanically Driven Boiler Feed Pumps Are Not New to Veteran Engineer

ALL through the long nights at the roundhouses of fifty years ago, the locomotives were taken out at regular intervals by the hostlers and run up and down the track so that the pump, connected to the crosshead, could pump water into the boiler. This was before the day of the injector and water could only be forced into the boiler while the locomotive was in motion. So the idea of driving boiler feed pumps from the machinery of the locomotive, as is done in the case of the Dabeg pumps on locomotives 1088 and 1402, is not a new one.



EDWARD H. SMYTH

This was one among the many interesting facts brought out by Pensioned Engineman EDWARD H. SMYTH, who for 52 years served the Delaware and Hudson Company as wiper, fireman, and engineman, in a recent interview. MR. SMYTH, who since his retirement has made his home in Portland, Oregon, entered our employ as a fireman at Albany in July, 1873, continuing in the service until December 1, 1925.

Born in 1855, at Swansea, Wales, where his father owned a store, EDWARD was not yet a year old when the family came to America in the hope of finding better business conditions here. They came immediately to Albany where the elder Smyth set up a haberdashery at the corner of Division and South Pearl Streets. Over the door of the store, known as the Dundee Shop, hung his sign, a ball, cross, and an anchor. The father told curious customers that sign meant that he "rolled across the ocean and anchored there."

Shortly after the Civil War the father died and upon EDWARD fell part of the responsibility of providing a home for his brother and sister. At the age of eighteen he went to work for the railroad at Lumber Street, now Livingston Avenue, under

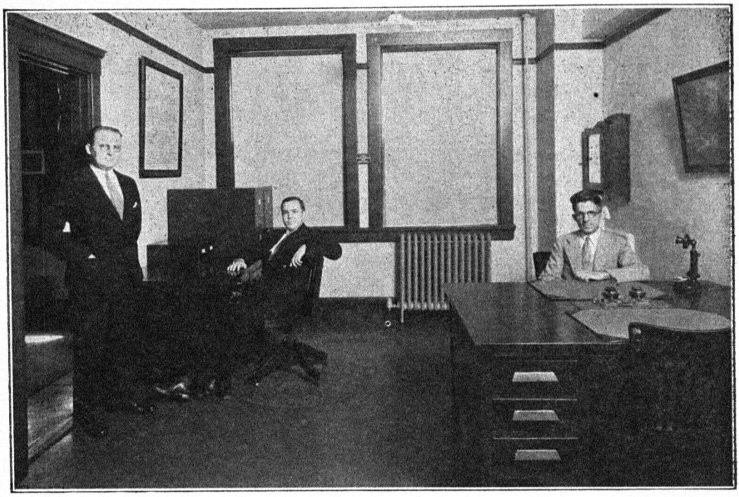
S. M. Craver, at that time agent at Albany, who also had charge of the operation of the railroad between Albany and Waterford Junction. His first occupation in Delaware and Hudson employ was as a fireman, although he was "set back" to wiping locomotives when business was dull. For two years he continued as fireman and wiper in the old roundhouse which stood just northeast of the bridge which now carries the New York Central lines over the Delaware and Hudson mains at Livingston Avenue.

Edward's first regular position as fireman was in the old Albany Yard. It was during this

(Continued on page 329)

Glimpses of Our Off-Line Offices

VI. St. Louis



THE above photograph of our St. Louis Freight Traffic office located at 2083-2084 Railway Exchange Building had to be held back until the conclusion of the "World's Series" lest the Philadelphia office force should accuse *The Bulletin* of being partisan.

Soliciting business, whether it be cotton, lumber, dairy products, flour or grain, makes life just a continual "World's Series" struggle. While the St. Louis Traffic men modestly deny all claims of being World's Champions, we feel safe in asserting that they are the best D. & H. men in the state of Missouri.

From left to right they are: W. R. St. John, General Agent, Freight Department, J. E. Ercanbrack, Chief Clerk, and W. H. Schulz, Traveling Freight Agent.

Timing the Railroad

Fast Trains Now Operate According to the Second, Rather Than the Minute Hand

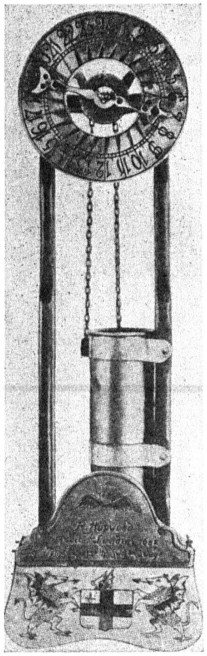
By L. E. CLARKE, *Assistant General Time Inspector*

THE movement of sunlight and shadow gave the earliest measures of time. The cave man would set a pebble in the sand in the path of a boulder's shadow to indicate the time of engagements—this sufficed for marking the time of a single day. When his activities became more complex, necessitating a timepiece that would tell more, he turned to the moon. He perceived that its changes occurred with regularity and he called it the moon, which means the measure of time. Later he made a rope of grass or straw, tied knots in it at equal distances, set fire to one end of the rope and measured time by the burning from one knot to another. Centuries later time was measured by the burning candle—"time candles," with notches at regular intervals or alternate black and white stripes around them.

Later the religious minded Chaldeans began to study what they deemed to be their gods, the stars. Think of the laws of the heavenly bodies they discovered. This marked the beginning of astronomy. Observing that the sun changed the points at which it rose and set, they deducted the duration of the year in order to calculate time. They devised the Zodiac. Noting the changes of the moon, they marked the year into months and from the seven great heavenly bodies they derived the idea of a week of seven days.

Next came the sun dial. Later the discovery of the hollow dial that matched the sun's hollow orbit in the sky, and the final brilliant discovery of setting the standing point toward the north star. Then came the water thief timepiece or water clock; such timepieces were used in the courts of law to limit the time of speakers.

A rude clock was evolved in the thirteenth century, while the watch did not come until three hundred years later. The first watch was made by a young Nuremberg locksmith while serving a sentence in jail. It was of iron, as large as a saucer, with only one hand. The night watchmen of that period carried these timepieces.



English Water Clock
(17th Century)

Another century went by before the next radical innovation; this was the invention of a crude hairspring made from a pig bristle. Later the present watch escapement was perfected.

Watches were first made by hand in England, Germany, and Switzerland. The first watch factory was built in Switzerland in the year 1840.

The first in the United States was that of E. Howard, in 1850. Later the Waltham and Elgin were built. In 1883, Webb C. Ball, designed special watches for railroad men.

Our American watch factories, in which millions of dollars are invested, employ thousands of skilled men and women, pay a good living scale of wages and produce nearly eight thousand watches each working day.

A watch is composed of 200 parts, requiring about 3,600 operations and eleven months time in the making. The jewels are mostly ruby or sapphire, their purpose being to provide bearings for the small pivots and to reduce friction to a minimum.

The balance wheel is supported by a balance staff, made of tempered steel, the pivots or bearings of which are about four thousandths of an inch in diameter, or about the thickness of common writing paper. The reason for their being so small is that the balance wheel must make 432,000 excursions of about three-quarters of a turn each twenty-four hours to keep correct time. This could not be done with large

pivots unless greater power were used than there is space to be utilized for the power plant, or mainspring, as it is commonly called.

The balance wheel with its hairspring is the governor of time. The compensated or adjusted balance is made of twenty pieces of metal, proportioned in such a manner that heat or cold does not affect the time.

Power is transmitted from the mainspring to the balance wheel by means of an escapement through a train of wheels and pinions, and so proportioned that the minute hand makes one full revolution every sixty minutes and the second hand one revolution every sixty seconds.

The escapement consists of an escape wheel of fifteen teeth, a pair of jewels mounted on an arbor, supported the same as the balance staff, which when in motion allows one tooth of the escape wheel to move one thirtieth of one revolution each time the balance wheel makes one of its 432,000 excursions per day. High grade watches are given the utmost care in all details of construction, and only the most skilled mechanics are employed to handle them.

From the above mentioned facts you would naturally expect a watch to be a very delicate machine, and so it is. If given proper care, however, one will produce almost perfect time through a period of many years.

Possibly we should emphasize the words "proper care." A watch is amply strong to stand any ordinary use in the pocket, but it must not be subjected to bumps, such as dropping or knocking against hard objects. Often a bump will bend a pivot or crack a jewel and the watch will keep on running, but it never will keep as good time as it did before the damage was done, until it is again put in its original condition.

The timepiece of today is no longer a luxury, but a necessity, and is so considered by all classes of men and women.

Comparatively few know anything about the construction of watches or clocks, or the care they should receive. The rule seems to be not to have anything done to them until they stop. Usually a watch will run months after the last atom of oil is used up. Imagine, if you can, running an automobile or locomotive until it stops and refuses to go for the lack of needed lubrication.

Fortunately, or otherwise, a watch is so constructed that oil cannot be applied with an oil can. It must be placed between the jewels where the capillary attraction keeps the pivots lubricated, or on bearings not capped with end jewels. A small amount can be applied when the watch is put together, which is usually sufficient to last for one or two years.

How long may a watch be expected to perform properly providing it is given good care and is not injured? Gentlemen's 18, 16, and 12 sizes may run a year or more. Best results are obtained when they are cleaned and fresh oiled at intervals of 18 months.

Smaller watches, less reliable as time pieces, should not be allowed to run more than one year. Some of the very small watches may not run more than six months without attention. A small watch has as many parts as the larger ones, and a very much reduced source of power which is not offset in reduced friction by the smaller size of pivots.

Front and rear views of tandem design built by Webb C. Ball Watch Company, in accordance with suggestions of MR. L. F. LOREE, for exhibition and instruction purposes.

The United States Naval Observatory telegraphic time signals begin at 11:57 A. M., Eastern Standard Time, and continue for a period of three minutes. The transmitting clock that sends out the signals is corrected shortly before noon from a mean of three standard clocks that are rated by star sights with a meridian transit instrument. This signal is seldom in error to an amount greater than 0.10 or 0.20 second, although 0.10 second more may be added by the relays in

use on long telegraph lines. Signals are also retransmitted by radio from Arlington, Va.

Many types of clocks are now in use in distributing time throughout the land. However, the most accurate type of clock manufactured is the Astronomical Regulator. It is usually mounted on a very heavy pedestal below the surface of the earth where it will be free from vibration and in a room kept at a constant temperature. It is suitable for Standard Time used in conjunction with a meridian transit and may be used for the production of Standard Time Signals.

Aztec Calanda Stone
First Timepiece Known in America

Railroad watch inspection was first introduced by the late Webb C. Ball, of Cleveland, Ohio, in the year 1889. The Lake Shore and Michigan Southern Railroad, now part of the New York Central System, was the first to adopt and install a time service. This was organized by Mr. Ball, who was appointed General Time Inspector for that railroad, following a bad wreck on the Lake Shore Railroad at Kipton, Ohio, where several were killed and many were severely injured, in addition to great property damage. Many liability suits were brought against the railroad company, costing thousands of dollars in the readjustment of claims.

This terrible wreck was caused by unreliable timepieces carried by the conductor and engineer of the two trains which came together head-on, one a fast freight and the other a passenger train.

Dependable and safe watches are highly prized and appreciated by all classes of railroad employees. The engineer or the conductor surely would not attempt to assume the responsibility of operating one of your trains in this day and age unless he had in his pocket a dependable timepiece, considered the most important instrument of the equipment incident to safety features. To the railroad man a dependable watch is like the compass to the mariner.

As stated by Mr. L. F. Loree, President of the Delaware and Hudson Railroad Corporation, in his speech to the Horological Institute of America at Washington, D. C., May 11, 1922, "No single element enters into transportation so continuously, so pervasively or with such vital importance as that of time. Not only are the train movements related to time but their safety is dependent upon its exact observance, while in the conduct of transportation it is essential that all regulate their conduct with reference to the same exact standard. To insure this, reference was had in the early days, for one or more operating divisions, to the passage of the sun at noon over the meridian at headquarters or at some prominent city on the line."

Replica of Sun Dial Gun
Made in Paris in 1650

Six days of the week, two hours in the morning and two hours in the afternoon, trains are operated in and out of the Grand Central Terminal at New York on half minute schedule. Mr. Bronson, former Superintendent, said one day that they had long ago discontinued watching the minute hand; that now it was the second hand they watched. Watch inspection is recognized as a necessity, not only for the single track system, but also the double track lines.

Every moment of our busy commercial and

(Continued on page 333)

"Good-Bye Stencil Brush"

Air Operated Spray Guns and Metal Stencils Supersede Brushes and Fiber Patterns Formerly Used in Applying Lettering and Numbers to Freight Cars.

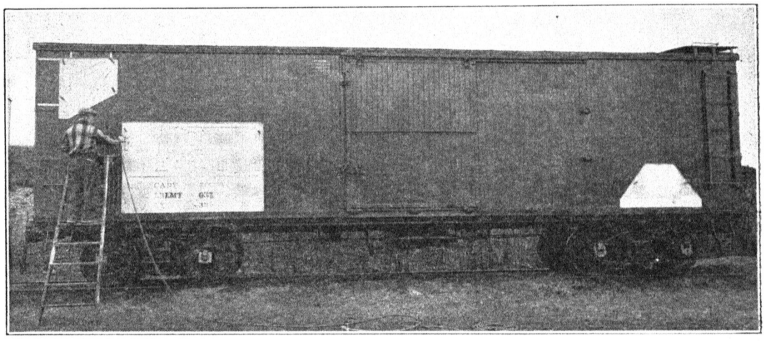
IN the August 1st issue of *The Bulletin* a description was given of the method of box car construction developed at Green Island Car Shops. Although the various mechanical steps were traced from the first operation to the completion of the car, space did not permit describing fully the painting operations as a part of which a novel system of stenciling was recently introduced.

Under the method employed the work is done almost entirely by air-operated spray guns. Formerly it was the practice to cut stencils out of paper and apply the required markings with brushes whereas, by the new method, the use of stencil brushes is almost entirely eliminated.

Stencils are now made of galvanized sheet iron instead of paper and indications are that they will last for some time before requiring renewal. There are three such substantial stencils used in the complete marking of a car. The largest, which measures six feet four inches by four feet six inches, carries the name of its owner (The Delaware and Hudson R. R. Corp.), number, nominal capacity, load limit, and light weight of the car. The lettering, which is not subject to change, is cut in the metal, but since each car is numbered differently and the tare weight varies, the numerals must be rearranged constantly.

The stencil is therefore provided with slotted openings to accommodate the numerals which are made of No. 9 gauge zinc, the back of each being reinforced with fine wire which keeps it flat and firm. Through the slotted arrangement, these numerals may easily be removed and changed.

The next stencil in size is commonly known as the dimension stencil. It contains, in addition to the car dimensions, the date the car was built, class of car, and journal repacking date and station symbol. In this, also, slots are provided for rearranging the numerals and letters. The smallest stencil is the one used for applying "The D. & H." monogram.



Spraying the Letters; Galvanized Iron Stencils Last Indefinitely

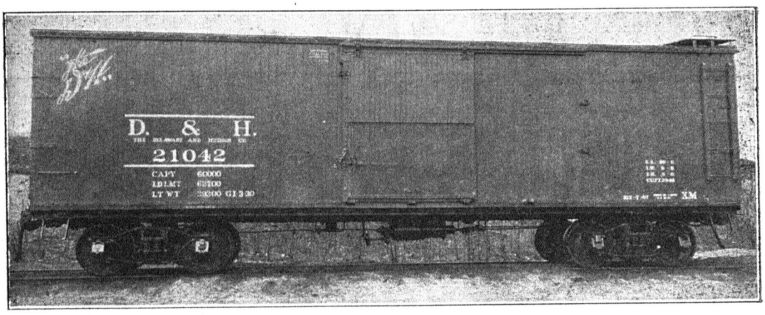
The work of marking the box cars turned out at Green Island is in the hands of two men who are compensated on the piecework basis. There is no delay as each operation moves along smoothly without any lost motion. What little brush stenciling is done, for example, the ends of the car, air brake equipment and markings on

the under frame where spraying is not practicable, is performed by one man while his partner is engaged in applying the monogram and rearranging the numerals, etc., in the other stencils, preparatory to the stenciling of the next car.

At the close of each day the stencils and numerals are brought to the paint room to be cleaned with turpentine and replaced on the rack. This portable rack carries several sets of numerals, as well as the three stencils previously described and is placed near the cars to be stenciled so the paraphernalia is readily available when needed.

The spray stenciling system speeds up shop operations and insures a uniform application of the markings which cars are required to carry under the A. R. A. code of rules. Incidentally, little delay is experienced waiting for the stenciling to dry as the white paint used sets up quickly; in fact, it dries in less than one-half hour after application.

The methods practiced on box cars in the Green Island Shops proved so successful that they have been extended to Oneonta, where open top equipment receives general overhauling, with very satisfactory results.



Car After Stenciling With Spray Gun

He Fired Wood-Burners

(Continued from page 324)

period that he frequently saw the hostlers running the engines up and down the track to pump water into the boilers. The first locomotive to be equipped with an injector at Albany was the *Le Grand B. Cannon.* All of the engines at that time were diminutive "four-wheelers," most of which burned wood. When he began firing, the first of the coal burners was just putting in its appearance in Albany. For some years afterward the *F. E. Woodbridge* which pulled the "Troy Local" continued as a wood burner.

After two or three years in the Albany Yard, MR. SMYTH was given the job firing on the "Junction Train," a local freight running between Albany and Waterford. This was followed by a longer period firing for Engineman Willis Fisher on the Whitehall local freight. There were no signals on the single track between Albany and Whitehall; trains were operated by train orders only. The sidetracks were few and far between, too, most of them being very short. One of the longest was that at the junction of the Delaware and Hudson and the Boston, Hoosac Tunnel, and Western, (then known among railroad men as the "Brought Home Tired and Weary.")

MR. SMYTH began as an engineer in 1880, working for fifteen years on train number 33 to Lake George. During the winter he worked on freight trains running between Green Island and Whitehall. At that time there were no Sunday freight trains; they were run on week days only. MR. SMYTH held various freight and passenger jobs in the years preceding November 30, 1925, when his wife's failing health made it imperative that they live in a warmer climate. After a short residence in San Diego, California, he has made his home in Portland, Oregon, where he hopes to spend many enjoyable years of retirement.

There is nothing that broadens one like travel, unless it is too many hot fudge sundaes.—*Exchange.*

The
Delaware and Hudson Railroad
CORPORATION
BULLETIN

Office of Publication:
DELAWARE AND HUDSON BUILDING,
ALBANY, N. Y.

PUBLISHED semi-monthly by The Delaware and Hudson Railroad Corporation, for the information of the men who operate the railroad, in the belief that mutual understanding of the problems we all have to meet will help us to solve them for our mutual welfare.

Permission is given to reprint, with credit, in part or in full, any article appearing in THE BULLETIN.

All communications should be addressed to the Supervisor of Publications, Delaware and Hudson Building, Albany, N. Y.

Vol. 10 November 1, 1930 No. 21

Truth

TRUTH is the beginning of every good thing, both in heaven and on earth; and he who would be blessed and happy should be from the first a partaker of the truth, that he may live a true man as long as possible, for then he can be trusted; but he is not to be trusted who loves voluntary falsehood, and he who loves involuntary falsehood is a fool.—*Plato.*

The Other Side

Little Bo-Peep has lost her sheep
And doesn't know where to find them;
Leave them alone and they'll come home
Wagging their tails behind HER.

"Behind *them*," corrected the mother of the little kindergartner who had just finished her sing-song recital of the old Mother Goose rhyme.

"Behind *her*," repeated the child and nothing could change her conception of the scene described in the verse.

It was only after considerable thought that the parent was able to form a mental picture of the little shepherdess and the tail-wagging flock trailing in her wake. Then came the realization that, perhaps, here was, after all, the true picture. Older and supposedly wiser heads had for generations back recited "behind them" to rhyme with "to find them" even though by so doing the whole verse became a nonsensical jargon. Yet a five-year old child with less sense of rhyme but good powers of reasoning and imagination had jumped the traditional track and refused to repeat, parrot-fashion, that which was not understandable.

The point is that there was justification for her point of view, though it did sound like mere stubbornness until viewed through her eyes.

So, when an argument comes up, think of Little Bo-Peep and those wagging tails, and perhaps you'll be able to see the other side of the question. It will help a lot.

Origin of Standard Gage

WHY the standard gage for the majority of railroad tracks the world over was set at the odd distance of four feet eight and one-half inches, has long been the cause of investigation by many interested persons.

A reader of *The Bulletin* has called attention to a book entitled "Magic Spades" by Magoffin and Davis, a paragraph from which reads as follows:

"The English Captain Alexander Hardcastle who has lived for many years at Girgenti in Sicily has contributed royally at various times to archaeological excavations and has himself engaged in several digs. In 1928 he measured the distance between certain ancient wheel tracks of the fourth century B. C. The inside tread between the iron tires was exactly four feet eight and one-half inches. Other wheel tracks near Virterbo had been found also with the same inside tread. In Malta the prehistoric cart tracks are also of the same width. Railroad engineers ought to be able to connect themselves to a long ancestry. That ancient tread is the same width as the standard modern railway gage."

What Are the Odds?

THERE are plenty of people willing to work. There are not so many who can fill the jobs that are waiting to be filled. Competition is keen among the little fellows. There are dozens of men for every vacancy. And, because almost any man can fill the bill, the wages are small.

A speaker, who was addressing some 500 school boys said, "I want every boy here to hold up his right hand if he will be willing to shovel the snow off my sidewalk next Saturday afternoon for one dollar."

Practically 500 hands shot up enthusiastically.

(Continued on page 334)

Stephenson's Engines

The Rocket, Though Built a Century Ago, Contained All Essential Features of Modern Locomotives and Ran Over Four Miles in Four and One-Half Minutes

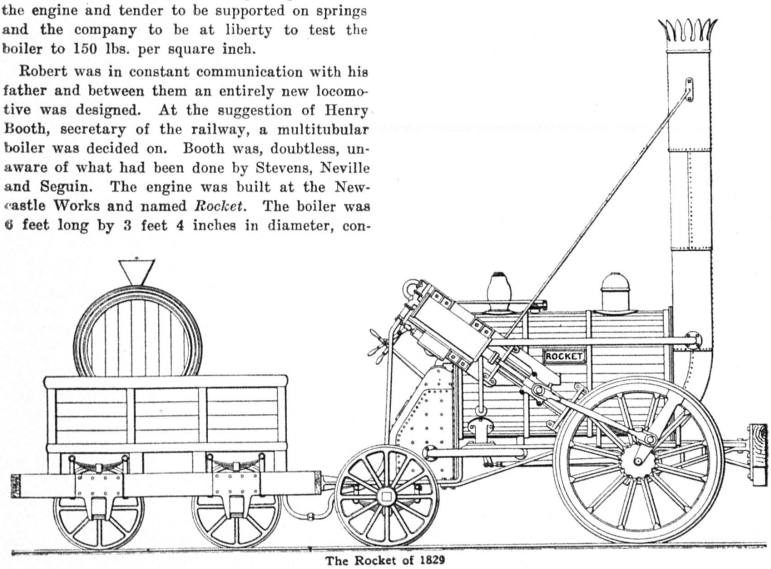
(*Continued from last issue*)

IN the midst of all this, locomotive engines had to be designed and built, and we come now to the period when Robert Stephenson became a valuable assistant to his father. George had given his son a good education and Robert took charge of his father's interest in the R. Stephenson & Co. works at Newcastle, where from that time he was mainly responsible for the locomotive developments introduced by this firm.

Against the opposition of the fixed engine party, the directors of the railway decided to offer a prize of £500 for the best locomotive engine. Among the stipulations were that the engine should consume its own smoke and, if of six tons maximum weight, had to draw 20 tons, including the tender, at 10 miles an hour, with a boiler pressure not exceeding 50 lbs. per square inch, the engine and tender to be supported on springs and the company to be at liberty to test the boiler to 150 lbs. per square inch.

Robert was in constant communication with his father and between them an entirely new locomotive was designed. At the suggestion of Henry Booth, secretary of the railway, a multitubular boiler was decided on. Booth was, doubtless, unaware of what had been done by Stevens, Neville and Seguin. The engine was built at the Newcastle Works and named *Rocket*. The boiler was 6 feet long by 3 feet 4 inches in diameter, containing 25 copper tubes 3 inches in diameter. The inside firebox was of copper, 2 feet long by 3 feet wide by 3 feet deep, with a water space of 3 inches around it. It was separate from the boiler and attached to the back thereof by rivets. Circulating pipes connected it to the boiler. The chimney base was enlarged to cover the ends of the tubes. The driving wheels were 4 feet 8½ inches diameter. Total heating surface was 137¾ square feet. The cylinders were 8 inches diameter by 16½ inches stroke, attached to a plate frame fastened to the boiler at an angle of about 35 degrees, but the main frame was of the bar type, 4 inches by 1 inch. Mr. Ahrons says that Robert originated the plate frame for a locomotive built in 1828.

This plate frame, being fastened to the boiler,



The Rocket of 1829

was faulty because it did not give firm connection between the cylinders and driving wheels. For this reason, and the steep inclination of the cylinders, the engine was unsteady at high speeds.

The exhaust steam was led by copper pipes to the chimney, one on each side. A feed pump was worked from the crosshead. The weight of the engine in working order was 8,500 pounds and of the tender 6,400 pounds. The driving wheels were of wood with iron tires.

Other engines were entered for the competition, but they were all eliminated except Hackworth's *Sanspareil* and Braithwaite and Ericsson's *Novelty*. They both broke down from failure of the machinery and defects of design.

The trials of the *Rocket* commenced at Rainhill on a piece of level track, October 8, 1829. Two loaded cars were attached to it, making the whole moving weight 17 tons. The fastest run was at the rate of 24 miles an hour. When running light, without the tender, it ran at the rate of 29½ miles an hour; and a car containing 30 passengers was drawn at the rate of 28 miles an hour. the trials were finished on October 14, 1829, and the directors awarded the prize of £500 to the Messrs. Stephenson and Booth.

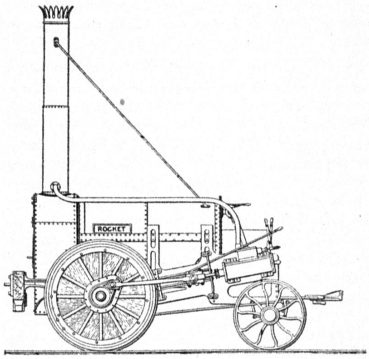
To show that the *Rocket* was capable of higher speeds, George ordered it to be brought out without the tender and then drove it over a course of about four miles at the rate of 35 miles an hour.

One of the drawings shows the *Rocket* as it ran at Rainhill. This drawing was made by G. H. Phipps, M.I.C.E., a draftsman employed by the Stephensons; but he made it partly from memory and omitted some details, lately discovered. It was published in *The Engineer* of 1884. In *Engineering* of the same year, an eye witness states that at the end of October, 1829, the *Rocket* was derailed, smashing the chimney base and front framing. When repaired, she had a regular smoke box and a shorter chimney. Again, at some unknown period, the cylinder frames were lowered to an angle of 8 degrees and fastened to the bar frame. The engine then ran steadier at high speeds. We do not know who originated these great improvements. The engine afterwards drew a light train upwards of four miles in 4½ minutes. It did a variety of service and was then placed in the Science Museum, London.

Between the dates of the Rainhill trials and the public opening of the railway, the Stephensons had turned out eight engines of improved design. One of them, the *Northumbrian*, had nearly horizontal cylinders and a firebox raised some inches above the boiler top. This engine headed a procession of trains at the opening of the railway on September 15, 1830, and the ceremony was regarded as an important national event, the Duke of Wellington, then Prime Minister, and Sir Robert Peel, secretary of state, being present.

The company expected to earn £10,000 a year from passenger traffic. The first year's receipts were £101,829. Freight was expected to give £50,000. It gave £80,000, and the commercial success of railways was demonstrated without the shadow of a doubt.

The *Rocket* had the bar frame, subsequently adopted in America. The plate frame for the cylinders was the beginning of British practice.



The Rocket After Rebuilding

The multitubular boiler with a separate firebox, which was quickly changed to the regular Stephenson firebox as in the *Northumbrian*, has been universally adopted and was the origin of the American wagon-top boiler.

The *Rocket* combined in itself all the essential features of the modern locomotive and was the most remarkable steam engine ever constructed.

It may be added that an engine named *Planet*, built immediately after the *Northumbrian*, had the driving wheels at the firebox end and horizontal cylinders in the smoke box. The bar frame was abandoned and a solid horizontal plate frame substituted. This is British practice of today.

It may not be generally known that some time ago Henry Ford ordered from Messrs. Robert Stephenson & Co., Ltd., the original builders of the *Rocket*, a replica of the old engine of 1829.

He gave the firm a carte blanche order to build an exact duplicate, capable of running under its own steam. It has cost a lot of money, but for that Mr. Ford cares nothing. The engine will be placed in his Detroit museum.

In *The Engineer*, issue of May 31, 1929, will be found an interesting article giving a full account of this replica, copiously illustrated.

When Messrs. Stephenson & Co. received the order they made a thorough search among their drawings and records and turned up some details of construction never before published. Among them was the complicated valve gear. This gear was a hook motion, but British engineers call it a "gab" motion. We quote from the article as follows:

"Reversing is a tricky business. The gab rods have to be lifted off their pins, a pedal has to be pressed, and the gabs have to be dropped again upon their pins, all in proper sequence. The *Rocket* had, let us say 'has', for she lives again in her new incarnation, but two eccentrics, one for each cylinder. These two eccentrics are fixed firmly on a sleeve in the right relative position to each other. On each side of them, keyed to the shaft, is a dog clutch. By pressing the foot on a pedal," (not shown in Phipp's drawing, Fig. 1) "kept up by a U-shaped spring, the sleeve can be moved out of engagement with both these clutches. In this position, after releasing the gabs, the driver takes the two valve levers in his hands and works them in proper unison, until the engine starts to move in the desired direction. He then drops the gabs into position and either releases the foot lever, so that the sleeve is pushed back by the spring, and the eccentrics lock themselves in one position, which they have automatically taken up, or depresses it till a notch engages with the foot plate, and the eccentrics are fixed in the other position by the other dog.

"At last, through the fine spirit of Mr. Ford and the devotion of the old firm, we know what the *Rocket* was like at Rainhill."

There is no doubt but that Robert Stephenson had much to do with designing and building the *Rocket*. George's energies were almost completely absorbed by the construction of the Liverpool & Manchester Railway, during which time Robert was the leading spirit in the Newcastle Works where he was building the *Rocket* and stationary engines and machinery for the construction of the railway, consulting his father from time to time by correspondence.—By Herbert T. Walker in *The Railway Mechanical Engineer*.

About Mistakes

MISTAKES will happen. The "wise-crackers" say the man who never makes one never does anything, just a bump on a log, afraid to move or take the initiative in anything, while the man who makes the mistakes is the man who plows ahead and sets the pace. If mistakes will happen, the thing to do is to cultivate the habit of heading them off, and to make as few as possible. In an office or factory carry a question mark in your mind at all times. The person who does this gives mental analysis to everything he has to do. Anyone who follows this plan systematically will not be immune from mistakes but he will make fewer than the one who never seeks to satisfy himself as to the right and wrong way of a thing.—*Mueller Record.*

Timing the Railroad

(Continued from page 327)

industrial life of the present age is dependent upon Standard Time. The money exchange, banks, schools, churches, athletic games, and sports, are all operated on a schedule of Standard Time. The night watchman making his rounds of inspection must be at a certain post at just such a minute to punch the time clock, lest the recording dial expose his neglect of duty. The skilled surgeon performs major operations by the count of time; the physician administers the anesthetic with watch in hand counting the heart beats.

Special watch dials are now in use for the aviator. Every movement of the armies of the world war was carried out on a schedule of time. Our system of standards, our code of ethics incident to present day habits are all dependent upon correct Standard Time.

The Delaware and Hudson Railroad Corporation, through its recognition of the importance of Watch Inspection and its splendid cooperation with the Ball Time Service of Inspection, stands out foremost of all American railroads as to records attained. We are continually holding your records up to other railroads to shoot at. All of your officials and employees exhibit a wonderful disposition to assist us to carry forward your splendid system of watch inspection.

Circular No. 235, published under date of Sep-

tember 8, 1924, designates the following employees who are subject to watch inspection rules:

Conductors, Trainmen, Enginemen, Firemen, Stationmasters, Switchtenders, Road Hostlers, Section Foremen, Extra Gang Foremen, Telegraphers and Towermen.

The minimum standard of excellence for watches entering service shall be 16 size, nineteen or more jewels, double roller, steel escape wheel, lever set, adjusted to five positions and temperature, open face with Standard Arabic Dials.

There are 29 Local Watch Inspectors covering the system from Wilkes-Barre, Pa., to Montreal, P. Q., Canada.

What Are the Odds?

(Continued from page 330)

"But I have only one house, and so each of you boys has only one chance in 500 of getting the job. The odds are 500 to 1 against you.

"I want every boy here to hold up his right hand who will be willing to paint my house, mix his own paint and do a first-class job."

About 50 hands were held up and the speaker said:

"Each of you boys has just one chance in 50 of getting the job. The odds are 50 to 1 against you.

"Now I want a new electric chandelier hung in my dining room. The wiring must be done according to the Underwriters' specifications. Any boy who can do this job please hold up his hand."

Only one hand in the entire audience was held up.

"Now," the speaker continued, "this shows that for plain labor like shoveling snow, the chances are 500 to 1 against you. For more skillful work like painting you have one chance in 50. But in expert work like electric wiring, the boy who held up his hand is sure of the job. In the long run, the easiest way is to get out of the class where there is such tremendous competition.

"No one in this age can make the excuse that he does not have the chance. Accredited home-study schools are now offering training which will carry one to the top in practically every branch of business or industry."—*Spang Standard.*

"I've been trying to think of a word for two weeks."

"What about fortnight?"

To Loaf or Not to Loaf?

EVERY man has a philosophy, and in this philosophy he appears as an important person.

A hobo, homeless and friendless, exclaims: "If we fellows didn't tramp the country, taking jobs at odd times in odd places, important work could not go forward. Who would harvest the grain, build the railroads, cut the timber?"

A taxicab driver says: "If I didn't make the trains a lot of important business would be held up."

A newspaper man tells himself: "How could the world function without the information I assemble and present each day."

Whiting Williams says that the search for self-justification is so persistent that even when people take to uneconomic and unsocial practices they defend themselves and try to build a philosophy to justify their way of life.

He senses a propaganda in the country favoring increasing leisure. The contention is that an eight-hour day has proved better economically and socially than a ten-hour day. Why not a five-day week? Why not a six-hour day?

People who do not wish to work at all propose plans for an absolutely idle class. Such a scheme has been advanced by Clive Bell, an English intellectual. He would have the state endow a group, whose function would be to teach the rest of us the art of living.

This much merit exists in his scheme: If we are to have more leisure we should discover how to use it intelligently and constructively because it is certain that we are in no shape now to adjust ourselves to more idleness.

Whether we can ever acquire sufficient moral fibre to keep ourselves out of mischief with more idle hours on our hands is a grave question. Many doubt it. History seems to be a record of classes and nations of leisure being displaced by workers.

The present philosophy of Americans elevates the worker and producer to the highest social rank. Loafers, whether rich or poor, live under a stigma. If loafing now becomes an honorable occupation our place at the head in the procession will be taken by a nation of workers.—*Exchange.*

Lady—How much are these chickens?
Butcher—A dollar and a half, ma'am.
Lady—Did you raise them yourself?
Butcher—Yes, they were $1.25 yesterday.

Clicks from the Rails

Mischievous Coon

One night a fast freight screeched to an abrupt stop at Sharon Center, Ohio, when the station order signal showed red —a thing that hadn't happened for many a day. Upon investigation it was found that the entire station had been gone through by some unknown marauder. Files and papers were strewn over the floor; ink bottles and rubber stamps were upset; and everything seemed to have been moved except the safe. A thorough search failed to reveal the culprit until, way in an out of the way corner they came upon a coon which had not been called for during the day. The animal had escaped from his box and had given the station a thorough "going over" before he was discovered.

* * *

"Lindy's Crossing"

For fourteen years Frisco and Missouri Pacific trains, averaging 100 per day, have thundered over a grade crossing at Pacific, Mo. For fourteen years a woman has stood as each of these trains went by displaying a sign reading "STOP" to the motorists about to cross the track. In all that time not a single accident has happened to any one of the thousands of pedestrians, automobilists, or school children who daily pass over the five tracks at "Lindy's Crossing". Only once did a man try to disobey her; when she had finished her lecture he promised never to do so again.

* * *

Old Air Race

As a follow-up on the interest aroused by the national air races held in Chicago this year, the Illinois Central *Magazine* recalls a race which took place between an airplane and the St. Louis Daylight Special, crack train of the Illinois Central, from Chicago to Springfield, Ill., on Sept. 29, 1910, twenty years ago. The story, then printed, read as follows: "Like a sea gull cleaving the air, Walter R. Brookins, cloud explorer, negotiated the 187 miles between the metropolis and the state capital at the average rate of thirty-three miles an hour and broke into smithereens the records for long-distance flying in such a machine."

In Boxer War

When on August 15, 1900, the gates of the Sacred City of China were stormed by the allied forces of the United States, England, France, Germany, Japan, Austria and Italy, and entered for the first time by white men, David Burr Hight was one of those to enjoy the distinction. Mr. Hight who retired from active duty as a Louisville & Nashville switchman on November 1, 1929, was at that time a private in the Fourteenth United States infantry and was 27 years old. His regiment had been sent to China to help quell the Boxer uprising, immediately following a year's campaign against the Phillippine insurrectionists under Aguinaldo.

* * *

Caterpillars Stop Trains

Locusts, grasshoppers, and beetles have been known to stop trains in Europe and Africa; now comes an account of an incident at Albany, Oregon, where several trains were held up for hours by caterpillars which swarmed over the tracks, making traction impossible.

Locomotive Names

When James I was made King of England about 1603, he brought with him from Scotland his much admired court jeweler, George Heriot, whom he familiarly nicknamed "Jingling Geordie," a sly reference to his wealth. Now, the London & North Eastern has named a locomotive in honor of George Heriot, who bequeathed the bulk of his fortune to the magistrates and clergy of Edinburgh, Scotland. The locomotive is a superheated "Scot" Class 4-4-0, No. 9421, and was built at Cowlairs in 1914. The name "Jingling Geordie" is painted on the side of the locomotive. There is also a Pacific type locomotive on the same road, No. 2751, called the "Humorist."—*New York Central Magazine.*

* * *

World's Longest Tangent Track

According to a recent issue of *The Salstaff Bulletin,* published monthly by the employes of the South African Railways, the longest straight stretch of railway line in the world is in the Australia Transcontinental Line where the tracks are perfectly straight for 330 miles.

Showing the Influence of Radio

Courtesy "Telephone Review"

Hope

E'en the meanest little street
Gets a ray of sun;
E'en the soberest of lives
Knows a little fun.

Every long and dreary day
Ends at last in sleep;
Every hill must have a crest,
Though the climbing's steep.

No one's life was meant to be
Just a load of sorrow;
P'raps the gladdest day of all
Comes to you tomorrow!

—*Selected.*